

REMARKSPresent Status of Application

The Office Action mailed April 23, 2003, objected claims 1, 4, 8 and 9 under 35 USC§103 (a) as being unpatentable over Applicants' admission in view of Tamaoka et al. (US Patent No. 6,232,237) and further in view of Bowden et al. (US Patent No. 5,320,709). Claims 2 and 3 were rejected under 35 USC§103 (a) as being unpatentable over in view of Tamaoka et al., further in view of Bowden et al. and further in view of Wu et al. (US Patent No. 6,440,873), and as evidenced by Fang et al. (US Patent No. 6,293,848). Claims 5, 6, and 7 were rejected under 35 USC§103 (a) as being unpatentable over in view of Tamaoka et al., further in view of Bowden et al. and further in view of Denning (US Patent No. 6,187,682), or further in view of Honda et al. (US Patent No. 6,361,712) and as evidenced by Fang et al. (US Patent No. 6,293,848), respectively.

In light of the following discussion, reconsideration and withdrawal of the Examiner's rejection are respectfully requested.

Discussion for 35 USC 103 rejections

Claims 1, 4, 8 and 9 stand rejected under 35 USC§103 (a) as being unpatentable over Applicants' admission in view of Tamaoka et al. (US Patent No. 6,232,237) and further in view of Bowden et al. (US Patent No. 5,320,709). Claims 2 and 3 were rejected under 35 USC§103 (a) as being unpatentable over in view of Tamaoka et al., further in view of Bowden et al. and further in view of Wu et al. (US Patent No. 6,440,873), and as evidenced by Fang et al. (US Patent No. 6,293,848).

First, pursuant to the amendments to 35 U.S.C. § 103(c), Applicants respectfully submit that it is inappropriate to use the Wu et al. (US Patent No. 6,440,873) as a cited

reference.

"Application 09/841,817 and US Patent No. 6,440,873 (Wu et al.) were, at the time the invention of Application 09/841,817 was made, owned by United Microelectronics Corporation."

Applicants believe that the above statement alone is sufficient evidence to disqualify US Patent No. 6,440,873 (Wu et al.) from being used in a rejection under 35 U.S.C. 103(a) against the claims of Application 09/841,817.

The Office Action considered that admitted prior art (APA) method substantially disclosed the instant claims and the Office Action relied on Tomaoka for motivating not to use amine-based organic solvents and Bowden for teaching ammonium fluoride dissolved in polyhydric alcohol.

Applicants respectfully disagree with this interpretation for the following reasons.

Tomaoka discloses a method for fabricating a semiconductor device. Tomaoka discloses using H₂O plasma for photoresist ashing after dry etching (col. 5, lines 13-25). Tomaoka mentioned "these residues cannot be removed during the ashing process step using the oxygen plasma, but are usually cleaned and removed using an organic solvent containing an amine group after the ashing is finished". Tomaoka merely discloses drawbacks of the post-ashing cleaning step by using the organic solvent containing an amine group.

However, Tomaoka emphasized that the method of ashing and removing a resist mask using H₂O plasma can effectively remove these (polymer) residues during the ashing and the cleaning using an organic cleaner is not required after the ashing is finished. Therefore, the Tomaoka reference only motivates the skilled artisan to use H₂O plasma for ashing the resist mask.

Bowden discloses a method for selectively removing oxidized organometallic residues and organosilicon residues and damaged oxides. Through use of a solution of anhydrous ammonium fluoride in a polyhydric alcohol, the alumino-organic compound 18 on the photoresist 16 after plasma etching of the aluminum layer 14 is removed, thereby exposing a clean photoresist layer which may be removed with a photoresist stripper.

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As discussed above, Tomaoka suggests using H₂O plasma for photoresist ashing with no suggestions to change the usage of organic solvent containing an amine group to match the claims. Further, there is no suggestion for the usage of an organic solution with ammonium fluoride by Tomaoka. In fact, since Tomaoka focuses on the supposed benefits of its usage of H₂O plasma for resist ashing without using an organic cleaner, it actually teaches away and dissuades the skilled artisan from using an organic cleaner. Therefore, the combination of references cited by the examiner can not, therefore, render the applicant's claims obvious to one skilled in the art of semiconductor fabrication.

As a result, Applicant submits that independent claim 1 and claims 4, 8 and 9 are patentably distinguishable over the cited references, taken alone or in combination, for the reasons discussed above. It is respectfully submitted that these claims are in condition for allowance.

As the Wu reference is disqualified as a cited reference, dependent claims 2 and 3 are patentably distinguishable over the cited references for at least the same reasons discussed above and for additional features cited in the claims.

Claims 5, 6, and 7 were rejected under 35 USC§103 (a) as being unpatentable over in view of Tamaoka et al., further in view of Bowden et al. and further in view of

Denning (US Patent No. 6,187,682), or further in view of Honda et al. (US Patent No. 6,361,712) and as evidenced by Fang et al. respectively.

None of the cited references Denning, Honda and Fang remedies the deficiencies of APA, Tomaoka and Bowden. Accordingly, dependent claims are submitted to be patentably distinguishable over the cited combination of references for at least the same reasons as independent claim 1, from which these claims respectively depend, as well as for the additional features that these claims recite. The claims are believed allowable and such allowance is respectfully requested.

In conclusion, the rejection under § 103 should be withdrawn.

CONCLUSION

In view of the foregoing, it is believed that all pending claims are in proper condition for allowance. If the Examiner believes that a telephone conference would expedite the examination of the above-identified patent application, the Examiner is invited to call the undersigned.

Dated: July 7, 2003

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